

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

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19-07-2004

REINHOLD COHN AND PARTNERS

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

15.07.2004

Applicant's or agent's file reference  
142699.8 DK

## IMPORTANT NOTIFICATION

International application No.  
PCT/IL 03/00206

International filing date (day/month/year)  
13.03.2003

Priority date (day/month/year)  
13.03.2002

Applicant

YEDA RESEARCH AND DEVELOPMENT COMPANY LTD. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international  
preliminary examining authority:



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**PCT**

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

(PCT Article 36 and Rule 70)



REC'D 16 JUL 2004  
 WIPO PCT

Applicant's or agent's file reference 142699.8 DK	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/IL 03/0206	International filing date (day/month/year) 13.03.2003	Priority date (day/month/year) 13.03.2002
International Patent Classification (IPC) or both national classification and IPC G02B21/24		
Applicant YEDA RESEARCH AND DEVELOPMENT COMPANY.LTD. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.  
  
☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  
  
 These annexes consist of a total of    sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  30.09.2003	Date of completion of this report  15.07.2004
Name and mailing address of the International preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Daffner, M  Telephone No. +49 89 2399-7087  

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/IL 03/00206**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-32 as originally filed

**Claims, Numbers**

1-28 as originally filed

**Drawings, Sheets**

1/11-11/11 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 28

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 28

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the Standard.

☐ the computer readable form has not been furnished or does not comply with the Standard.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	2-14,16-27
	No: Claims	1,15
Inventive step (IS)	Yes: Claims	
	No: Claims	1-27
Industrial applicability (IA)	Yes: Claims	1-27
	No: Claims	

2. Citations and explanations

**see separate sheet**

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**Re Item I**

**Basis of the opinion** are the application documents as originally filed.

**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

Claim 28 was not covered by the international search report since the second invention was not searched (see lack of unity objection on the additional sheet of the search report).

**Re Item V**

**Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

- 1 The method defined in claim 1 is vague.
  - 1.1 Claim 1 defines a method of auto-focusing by locating a focal plane of an objective lens at a predetermined distance from the substrate, providing continuous displacement along the optical axis and continuously detecting reflected components of the electromagnetic radiation.
  - 1.2 The claim further defines that the reflected components being characterized by a first intensity peak corresponding to the opposite surface of the substrate and a second intensity peak corresponding to an in focus position of the sample supporting surface.

It is however not apparent which additional method steps are necessary to provide said two intensity peaks. In contrary it would appear that the appearance of intensity peaks depends on the characteristics or the preparation of the sample and the sample supporting substrate.
  - 1.3 Furthermore it appears that if the focal plane is continuously displaced, there **must** be a reflection intensity peak at every surface passing the focal plane.
  - 1.4 In addition it is not clear why the imaging of the sample is enabled when the sample supporting surface is in the in focus position. Apparently this is only possible if the height of the sample is incidentally lower than the depth of focus of the lens.

- 2 Claim 15 is unclear since the reader is left in doubt about the features of a control

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unit necessary to identify a first intensity peak and a second intensity peak.

- 3 Claim 3 is obscure since it is not apparent at which plane the displacement should actually start. Apparently it is merely another predetermined distance as defined in claim 1, feature (i).
- 4 Claim 4 is obscure since it is not clear what is meant by connectable (e.g. mechanical or electrical etc.).
- 5 The auto-focusing method as defined in claim 1 is not novel since the method as far as it clear is anticipated by the method according to document D1 (WO 01 90796 A).

Document D1 discloses an auto-focusing method for determining an in - focus position (see summary) of a sample supported on one surface of a substrate plate made of a material transparent with respect to incident electromagnetic radiation (claims 2 and 3), the method utilizing an optical system capable of directing incident electromagnetic radiation towards the sample and collecting reflections of the incident electromagnetic radiation which are to be detected (see e.g. fig. 3a) and comprising:-

- (i) locating a focal plane of an objective lens arrangement at a predetermined distance from a surface of the substrate, which is opposite to said surface supporting the sample (see page 6, line 31 to page 7, line 29; 'below the slide');
- (ii) providing continuous displacement of the focal plane relative to the substrate along the optical axis of the objective lens arrangement, while concurrently directing the incident radiation towards the sample through the objective lens arrangement to thereby focus the incident radiation to a location at the focal plane of the objective lens arrangement (see e.g. page 3, lines 30, 31 or claim 11) and
- (iii) continuously detecting reflected components of the electromagnetic radiation collected through said objective lens arrangement,
- (iv) as already discussed in above paragraph 1 an intensity peak of reflected light has to be expected at every surface. Thus there has to be expected a first intensity peak corresponding to an in focus position of said opposite surface of the substrate and a second intensity peak spaced in time from the first intensity peak and corresponding to an in focus position of said sample supporting surface of the substrate.
- (v) As discussed in above paragraph 1.4 there could thereby be 'enabled

imaging of the sample when in the in focus position of the sample supporting surface of the substrate'.

- 6 The auto-focusing device defined in claim 15 is not novel.
- 6.1 An auto-focusing device comprising a light source, a focusing optics, a light directing assembly and a drive assembly is anticipated by a standard auto-focusing microscope.
- 6.2 Furthermore such an auto-focussing microscope has also a control unit. As pointed out in above paragraph 2 it is not apparent which features are to be provided in order to 'identify' the first and second intensity peak. The auto-focussing devices of documents D1, D2 (US 2001/033414 A1) and D4 (US 4 342 905) provide control circuits to detect intensity peaks. These documents discuss the problem of identifying special intensity peaks out of a plurality of peaks. Apparently the application does not provide a solution in order to identify specific intensity peaks. In addition, no feature of the control unit is apparent which is not provided by the control units defined in said documents.
- 7 The following dependent claims do not contain any features which, in combination with the features of any claim to which it/they refers/refer, meet the requirements of the PCT in respect of novelty and/or inventive step, the reasons being as follows:-
- 7.1 Claims 2 and 16: It is clear that the person skilled in the art would select the spectral range in order to avoid additional unwanted light.
- 7.2 Claim 3: see above paragraph 2.
- 7.3 Claims 4 and 20: slowing down as e.g. coarse and fine adjustment is standard, see e.g. document D3 (JP 61 - 011 714).
- 7.4 Claim 5 appears to define a raster scanning microscope, which is however standard.
- 7.5 Claims 6 and 18: in order to optimize depth resolution it is necessary to maximise the used aperture.
- 7.6 Claims 7 and 17: Spatially separating incident and reflected radiation, i.e. separating emitter and detector is standard.
- 7.7 Claims 8 and 19: Filtering is standard (e.g. confocal sensor).

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- 7.8 Claims 9 and 21: see above remarks in above paragraph 1.4.
- 7.7 Claims 10 - 12, 14 and 26: e.g. fluorescence microscopy.
- 7.8 Claims 13 and 23: Three dimensional microscopy, e.g. confocal microscopy.  
Deconvolution with the PSF in order to deblurring is standard in optical information processing.
- 7.9 Claim 22, see above paragraph 4.
- 7.10 Claim 24 is trivial.
- 6.11 Claims 25 and 27: see e.g. document D6 (JP 02 - 190 808).

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